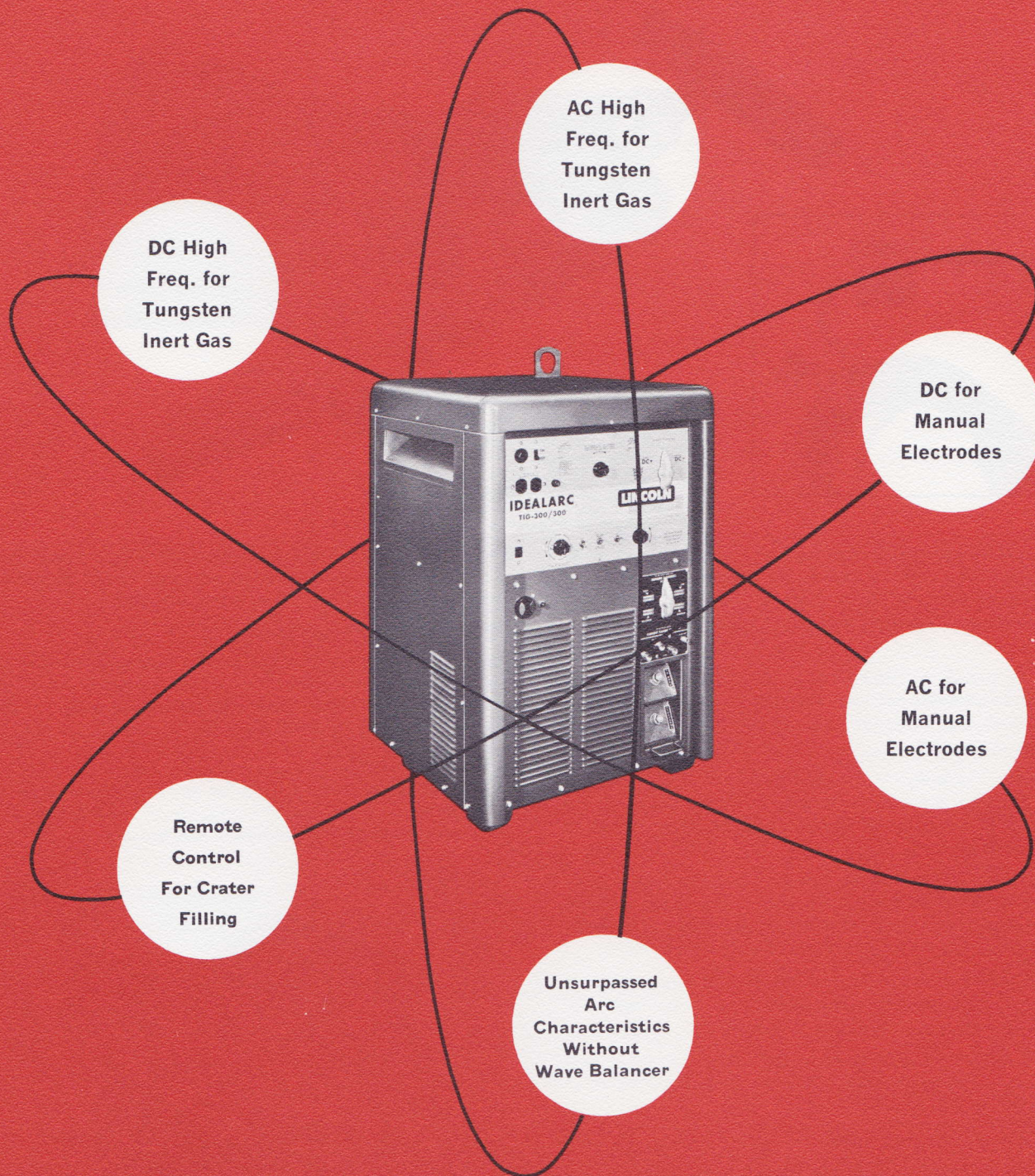


**LINCOLN**  
WELDERS

# IDEALARC TIG

## AC & AC/DC ARC WELDERS



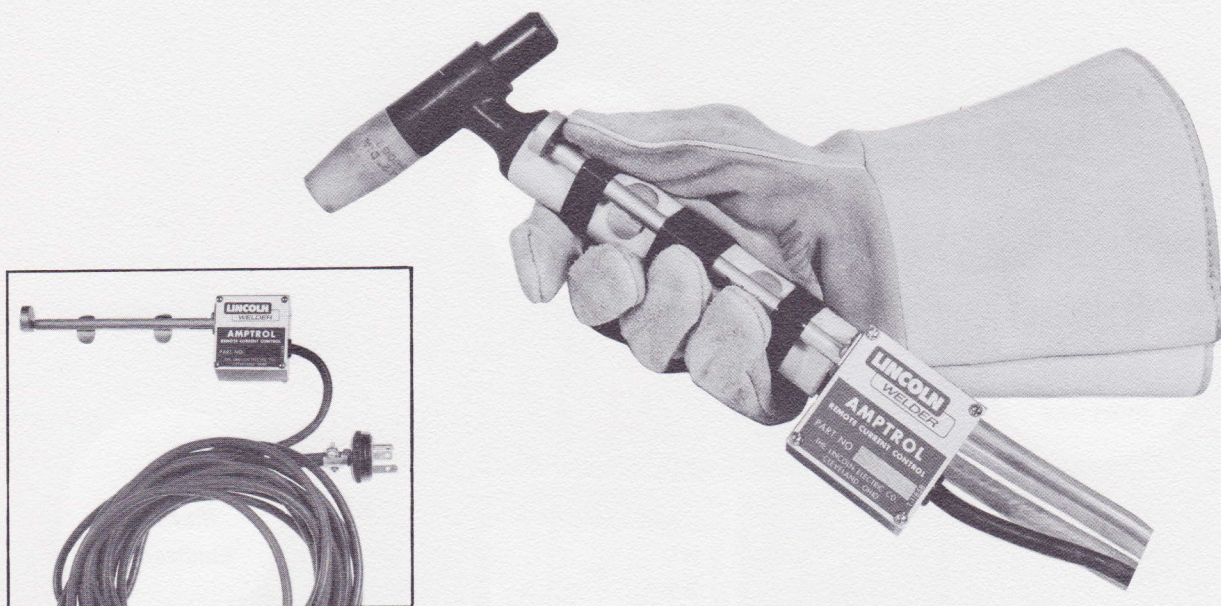
SELECT ANY OR ALL OF  
THESE FEATURES IN THE

# NEW "TIG" MODELS



# Revolutionary **AMPTROL**

## FINGERTIP REMOTE CONTROL



Instantaneous remote control for crater filling and heat adjustment is the primary reason for the saturable reactor-type welders used for Tig welding. It is vital on many jobs and cannot be supplied with other types of transformer welders.

Lincoln is proud to introduce a whole new concept of instantaneous remote control—fingertip control with Amptrol. Here's how this optional feature provides unsurpassed operator convenience.

1. Maximum mobility — attached to the torch, Amptrol lets the operator move anywhere he can take the torch. He is free of cumbersome controls that tend to tie him to one location.
2. Adjustable control range — Amptrol adjusts currents from the minimum of the range to the maximum set with the fine adjustment current control on the welder; can cover an entire range or up to any preset maximum value.
3. Automatic arc start and stop — Amptrol incorporates a switch which automatically starts and stops high frequency, welding power, gas and water.
4. Lightweight — entire remote unit weighs only a few ounces which is insignificant when compared to torch weight.

Here's how the Amptrol works:

When the operator moves the control with his thumb, the little variable resistor in the Amptrol adjusts a small current in a magnetic amplifier circuit which in turn varies the main DC control current in the saturable reactor of the welder and changes the output of the welder. Because it does not carry full reactor control current, Amptrol is small and does not get hot.

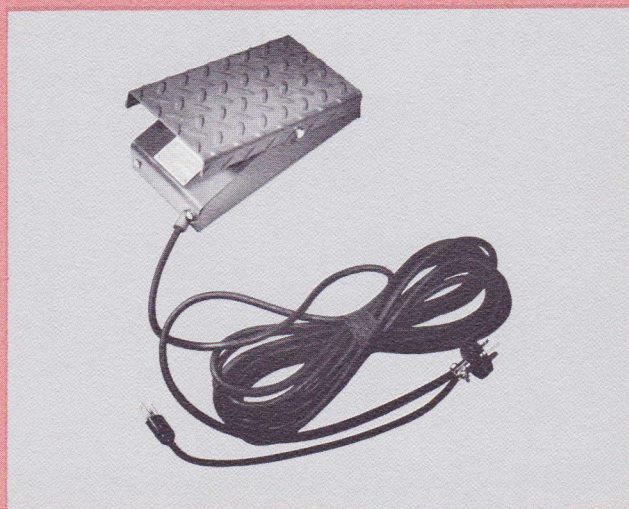
Available only on the Lincoln Idealarc TIG, Amptrol is a real step forward in operator convenience when Tig welding. Try it today. (Type K-745, optional equipment.)

### FOOT OPERATED AMPTROL

Employing the same principle as the torch-mounted model, the foot operated Amptrol is available for those who prefer it. The control is lightweight and provides the operator with excellent mobility. (Type K-746, optional equipment.)

### ARC START SWITCH

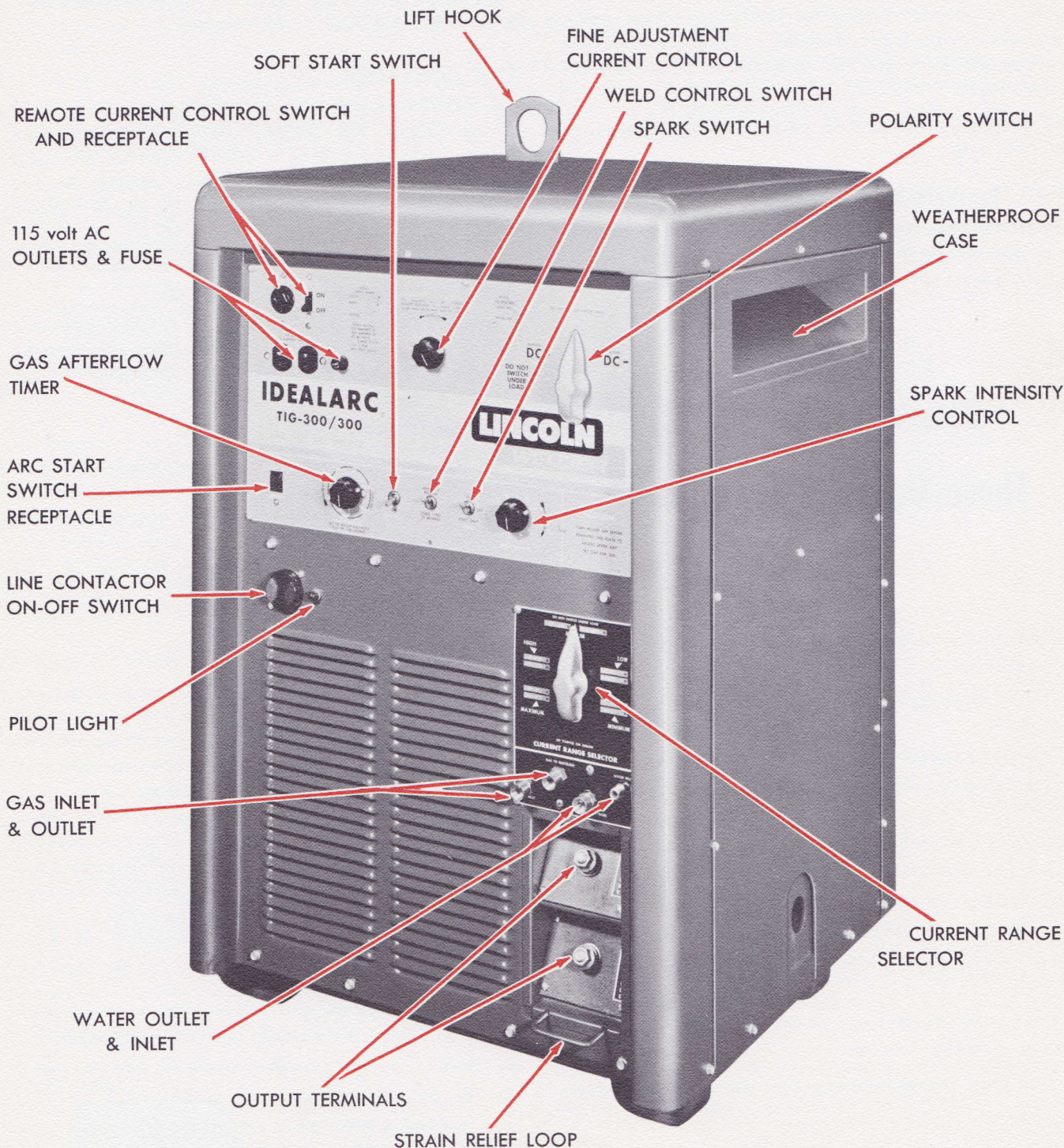
When neither Amptrol is used, an arc start switch must be used to operate the output contactor on models with high frequency. (Type K-747, optional equipment.)



Foot Amptrol employs same type of control as the hand model.



# Lincoln "Idealarc TIG" Arc Welder



**FOR ALL MANUAL ARC WELDING APPLICATIONS**  
particularly for Tig welding!



# BASIC EQUIPMENT

The heart of the Idealarc TIG welder is a completely new saturable reactor transformer welder with plenty of capacity and exceptional arc characteristics. It is an excellent AC arc welder capable of handling a wide range of AC arc welding applications. This straight AC Idealarc is known as Model TIG-300.

The TIG-300/300 AC/DC Idealarc is actually the same high-quality AC welder with rectifiers, line contactor and other necessary circuitry added. This model has the same excellent AC welding characteristics, plus DC — at the flip of a switch.

Arc characteristics on AC tungsten inert gas welding applications are of special interest. Most saturable reactor welders require expensive and complicated wave balancers to handle this application. Idealarc TIG, because of its exceptionally fine wave shape, handles all but a couple special applications (see "Arc Polarizer" optional feature) without the wave balancer. It provides excellent cleaning action, top welding speeds and superb weld quality. On the four lower ranges, where wave shape is best, it will make X-ray quality welds which are completely tungsten-free.

Here are features that make either type Idealarc TIG welder an outstanding machine.

## SELECTOR SWITCH

The selector switch on the combination AC/DC models has DC+, DC— and AC positions. A new design, it is rugged and capable of standing heavy use under severe conditions.

## CONVENIENT CURRENT CONTROL

A selector switch divides the TIG's 2 to 375 ampere output into five easily adjusted narrow ranges:

Range	Minimum	Low	Medium	High	Maximum
AC amps.	2—27	8—93	13—150	25—250	60—375
DC amps.	2—27	8—93	15—165	35—270	100—375

A rheostat control provides fine tuning within each range. Further, all machines accommodate remote current controls.

## OVERLOAD PROTECTION

All AC/DC Idealarcs and all straight AC's equipped with line contactors have built-in overload protection. This prevents damage to the welder from excessive heat in the windings or rectifier, regardless of the source of heat.

## INDICATOR LAMP

A red light provides a visible signal that the welder is turned on. This lessens the chance that the machines will be left on overnight or over the weekend when they should be turned off.

## RECESSED CONTROL PANEL

The entire face of the machine is recessed to prevent accidental damage to the controls. Output studs are recessed

still further to give added protection against accidental short circuits across them.

## STRAIN RELIEF LOOP

A rugged strain relief loop under the output terminals restrains excessive tension on the cable to prevent loosened contacts, arcing and cable overheating at the studs.

## AMPLE COOLING

A large fan forces quantities of clean air from the top of the welder down over rectifier stacks and windings and out the bottom. This provides ample rectifier cooling without sucking dust and dirt from the floor through the machine.

## Every "Idealarc TIG" Welder Has All These Features

## AC SERVICE OUTLET

A duplex, 115 volt service outlet is provided on the front panel. This outlet is fused for 15 amps and is grounded to the welder case.

## CONVENIENT MAINTENANCE

Maintenance personnel really appreciate the accessibility and ease of maintenance of the Idealarc TIG models. The sides of the machine remove easily and individually for routine inspection and cleaning. All parts are readily accessible.

## SINGLE PHASE POWER

The Idealarc TIG welder can be used on any type of AC power source because it is a single phase machine. It is not limited to three phase power supply.

## CONNECTS TO TWO VOLTAGES

Two-voltage (i. e. 220/440) machines are easily reconnected. On machines with line contactors this is done without changing any leads by merely moving a contact plate. The panel automatically reads the voltage for which it is connected.



# OPTIONAL EQUIPMENT

Optional equipment converts the basic TIG-300 or TIG-300/300 Idealarc welder into a deluxe machine for all types of tungsten inert gas welding. Other features provide added convenience in using the machine. All except undercarriages may be factory-installed as integral parts of the machine and some are also available as a kit for field installation.

For optional remote control equipment, see Amptrol on opposite page.

## HIGH FREQUENCY AND INERT GAS CONTROL

This feature provides all controls necessary for any tungsten inert gas welding. It can be set to operate in any of the following ways with either AC or DC.

## Select Any or All These Optional Features

1. High frequency, continuous during arc time, with gas and water control.
2. High frequency for arc start only, with gas and water control.
3. No high frequency, but water and gas control.
4. No high frequency, no water and gas control.

Two switches provide the above choices. The first is a master switch that turns on and off the whole high-frequency unit, including gas and water controls. When it is in the "on" position, the second switch selects continuous spark, start-only spark or no spark without affecting the gas and water controls.

A timer adjusts the gas and water after-flow time. It is set according to electrode size.

A "soft-start" control reduces current during arc start when switched on.

Cable and torch are electrically "cold" except when welding. To weld, the operator depresses a remote switch located either in the Amptrol or arc start switch. This closes an output contactor to apply high-frequency and welding current. The contactor opens when the remote switch is released to extinguish the arc. Factory installed only.

## POWER FACTOR CORRECTION CONDENSERS\*

Power factor condensers improve power factor and reduce input current. With them, it is possible to install lighter input leads and reduce KVA power demands.

## LINE CONTACTOR

You start the Idealarc TIG with a pushbutton on the front of the machine. This operates a magnetic contactor type starter, which is connected to provide overload and overheating protection for the rectifier and windings. The line contactor is standard equipment on AC/DC models; optional on straight AC models.

## 115 VOLT PUSHBUTTON CONTROL\*

This feature modifies the pushbutton circuit on the line contactor so it meets special safety regulations which require that pushbuttons operate only in 115 volt circuits.

## AUTOMATIC ARC FADE CONTROL

This attachment automatically fades-out the current when the operator releases the Arc Start Switch at the end of a TIG weld. Controls adjust rate of current decay and current level at cut-off. Overall fade-out time can be adjusted from 1½ to 7½ seconds, approximately. Feature cannot be used with either Amptrol. (Type K-750.)

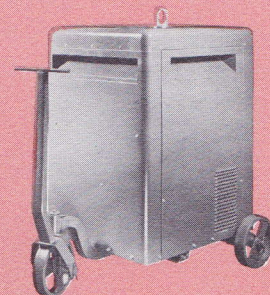
## ARC POLARIZER

This attachment improves arc characteristics on two types of aluminum TIG welding applications: feather-edge butt welds where it is desired to obtain a smooth well-shaped bead on the back of the joint, such as the root pass in a pipe joint weld; and low current applications which require exceptional cleaning, such as thin edge or corner welds using less than 40 amps. Attachment is a separate unit which is inserted in the welding circuit. It includes three 6-volt batteries and a charging circuit, and operates from a 115-volt, 60-cycle power supply. (Type K-751.)

## UNDERCARRIAGES\*

Heavy duty, three-wheeled undercarriages provide convenient portability for machines that frequently move from one place to another in the shop. Available with either steel (K-726) or solid rubber tired (K-726R) wheels, the undercarriage pulls easily and requires little extra floor space beyond that required for the welder itself.

\*Available in a kit for field installation.





# APPLICATIONS

Idealarc TIG welders are exceptionally versatile welding machines. No other welder offers all the features available on these Idealarcs. No other machine can do so many arc welding jobs.

First, Idealarc TIG welders are especially applicable to tungsten inert gas welding of aluminum and other newer metals with AC and high frequency. The output characteristics provide an even wave shape that produces best arc characteristics and cleaning action.

All necessary controls for tungsten inert gas welding are integral parts of the high frequency package. Smooth remote control, so necessary in crater filling, is available. In short, Idealarc TIG welders have everything required in a machine for AC, high frequency, inert gas welding.

Further, direct current with high frequency is used for tungsten inert gas welding of stainless and some alloy steels.

Idealarc TIG welders are fine for this type of work too. Again, they have everything necessary to do the job.

In addition, Idealarc TIG is an excellent machine for all conventional, coated electrode, applications. AC or DC, convenient controls, good arc characteristics, ample current range, and many other features provide plenty of operator appeal and outstanding welding performance. Job shops and maintenance departments particularly appreciate the ability to handle, with one machine, both their routine work and the aluminum or other special jobs they encounter.

Idealarc TIG is truly an exceptionally versatile machine for both inert gas and conventional electrode welding.

(Note: If your welding requires only conventional coated electrodes, see Bulletin 4607.1 which describes the model TM Idealarc welder.)

## SPECIFICATIONS

Model	TIG-300	TIG-300/300	INPUT POWER			
Type 60 cycle	K-1174	K-1175	Volts:	60 cycle: 220/440		
50 cycle	K-1176	K-1177		50 cycle: 220/380/440		
NEMA Output			Phase:	Single (or any one of 2 or 3)		
Amperes	300	300	Cycles:	60, 50		
Arc Voltage	40	40	Special Voltages:	220/550 and single voltages available at slight extra charge.		
Duty Cycle	60%	60%				
Output Current Range			DIMENSIONS			
AC	2 to 375 amps.	2 to 375 amps.		Height	Width	Depth
DC	....	2 to 375 amps.	Machine, Overall	44 <sup>7</sup> / <sub>8</sub> "	26 <sup>1</sup> / <sub>8</sub> "	28 <sup>1</sup> / <sub>2</sub> "
			Export Crate	58"	33 <sup>3</sup> / <sub>4</sub> "	37 <sup>3</sup> / <sub>8</sub> "
			Mounting Holes (centers, <sup>5</sup> / <sub>8</sub> " x <sup>7</sup> / <sub>8</sub> " slots)		21 <sup>27</sup> / <sub>32</sub> "	14 <sup>1</sup> / <sub>2</sub> "
Input Current (on 220V and at rated output)			WEIGHTS (With high frequency unit)			
With Condensers	104 amps.	104 amps.		TIG-300	TIG-300/300	
Without Condensers	112 amps.	112 amps.	Net	692	755	
			Shipping, Domestic	637	830	
			Export	822	960	

**THE LINCOLN ELECTRIC COMPANY**

*The World's Largest Manufacturer of Arc Welding Equipment and Electrodes*  
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